

AMENDMENTS TO THE CLAIMS

Complete listing of the claims

1. (Currently Amended) Reactor for the production of carbon black characterized in that said reactor comprises:

a feeding gun for inlet feeding hydrocarbon feedstock in relation to a centerline of tangential entries in the reactor to vary a vortex strength to obtain carbon black of different properties;

~~said reactor having three inlets for combustion gases which are injected separately, axially through one inlet and tangentially through two inlets and,~~

three inlets for air which inject air separately, axially through one inlet and tangentially through two inlets,

the feedstock inlet feeding, the axial combustion gas inlet and the air inlet being concentric,

each tangential combustion gas inlet and air inlet being concentric, and

mechanisms for controlling the velocities and the quantities of injected combustion gases and air at each inlet separately, whereby potassium is substantially reduced due to the separate control of injected reactants and whereby a vortex strength is controlled by controlling the tangential flow at each separate tangential inlet.

Claims 2- 4. (Cancelled).

5. (Currently Amended) Reactor according to claim 4 1 characterized in that the feedstock, the axially input combustion gases gas and the axially input air are injected concentrically axially into the reactor ~~through one inlet and tangentially through two inlets.~~

6. (Currently Amended) Reactor according to claim 3 1 characterized in that the air is and the combustion gas introduced tangentially at the each tangential inlet are

injected axially and concentrically, tangentially through the two tangential inlets for the air and combustion gas three separate inlets.

Claims 7-10. (Cancelled).

11. (Currently Amended) Process for the production of carbon black by pyrolytical decomposition of hydrocarbon comprising the following steps:

introducing the hydrocarbon feedstock along the center of ~~the~~ a reactor;

introducing combustion gases axially and tangentially through three separate inlets, one axial and two tangential;

introducing air axially and tangentially through three separate inlets, one axial and two tangential ; and,

~~by separate control of~~ separately controlling the quantities and the velocity of the combustion gases and of the air introduced through each inlet, changing to control a vortex strength and to control tangential flow in the reactor to change the quality of the produced carbon black and to substantially reduce potassium.

Claims 12 and 13. (Cancelled).

14. (Currently Amended) Process according to claim 11 characterized in that the ~~Axial~~ axial velocity of injecting fuel ~~or, air ranging and of injecting air ranges~~ from 30 met/sec to 200 met/sec ~~and preferably from 50 to 180 met/ sec most preferably between 60 to 160 met/sec~~.

15. (Currently Amended) Process according to claim 11 characterized in that the tangential velocity ~~ranging~~ ranges from 30 to 350 met/sec ~~preferably between 50 to 300 met/sec and most preferably between 60 to 270 met/sec~~.

16. (Currently Amended) The process according to claim 11 characterized in that ratio of axial velocity to tangential velocity falls within the range of 0.1 to 5.3 ~~preferably between 0.5 to 2.5~~.

17. (Currently Amended) Process according to claim 11 characterized ~~in that~~ by the step of substantially reducing the quantity of potassium required to control structure is substantially reduced by separately controlling the velocities and quantities of feedstock, combustion gases and air at each inlet.
18. (Withdrawn).
19. (Withdrawn).
20. (New) Process according to claim 11 characterized in that the axial velocity of injecting fuel and of injecting air ranges from 50 to 180 met/ sec.
21. (New) Process according to claim 11 characterized in that the axial velocity of injecting fuel and of injecting air ranges from 60 to 160 met/sec.
22. (New) Process according to claim 11 characterized in that the tangential velocity ranges from 50 to 300 met/sec.
23. (New) Process according to claim 11 characterized in that the tangential velocity ranges from 60 to 270 met/sec.
24. (New) The process according to claim 11 characterized in that ratio of axial velocity to tangential velocity falls within the range of 0.5 to 2.5.
25. (New) The process according to claim 11 characterized in that the feedstock, the axially input combustion gas and the axially input air are input concentrically axially.

26. (New) The process according to claim 11 characterized in that the combustion gas and air input tangentially at each tangential combustion gas inlet and air inlet are input concentrically tangentially.